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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/808,951	03/16/2001	Toshiaki Mori	NIT-266	5297

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ALEXANDRIA, VA 22314

EXAMINER

ALI, SYED J

ART UNIT	PAPER NUMBER
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2127

DATE MAILED: 07/20/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/808,951

Applicant(s)

MORI ET AL.

Examiner

Syed J Ali

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date March 16, 2001.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-9 are pending in this application.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on July 26, 2000. It is noted, however, that applicant has not filed a certified copy of the 2000-231346 application as required by 35 U.S.C. 119(b).

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Tanaka et al. (cited by Applicant in IDS filed March 16, 2001) (hereinafter Tanaka).

8. As per claim 1, Tanaka teaches the invention as claimed, including a method of allocating computer resources in a virtual machine system, comprising the steps of:

providing an active VM and a standby VM (paragraphs 0009-0010);

allocating a main storage area sufficient to execute a certain application program to the active VM (paragraphs 0010, 0023, 0030) and a small main storage area insufficient to execute the application program to the standby VM (paragraphs 0010, 0029); and

when a fault occurs in the active VM (paragraphs 0010, 0025), attaching a part or all of the main storage area allocated to the active VM to the standby VM (paragraphs 0010, 0023, 0025, 0029, 0059).

9. As per claim 2, Tanaka teaches the invention as claimed, including the method of allocating computer resources in the virtual machine system according to claim 1, further comprising the steps of:

providing a hot standby application program performing the same application as the certain application program in an auxiliary memory (paragraph 0010); and

when a fault occurs in the active VM, attaching a main storage area allocated to the certain program to the standby VM, and executing the hot standby application program using the main storage allocated to the OS of the standby VM (paragraphs 0010, 0023, 0025, 0029, 0059).

10. As per claim 3, Tanaka teaches the invention as claimed, including the method of allocating computer resources in the virtual machine system according to claim 1,

wherein the virtual machine system has a virtual machine monitor to control plural OSs (paragraph 0002), which provides a resource management table which contains the respective use amounts of main storage for each of OSs, the virtual machine monitor, application programs, and unused areas, OSs or virtual machine monitor that uses the areas (paragraphs 0023-0024); and OSs or virtual machine monitor as target systems to change in abnormal status (paragraphs 0010, 0023, 0025); and

wherein the virtual machine monitor, when a fault occurs in the active VM, refers to the resource management table and issues a request to attach the use amount of a required main storage area to a recorded target system to change in abnormal status (paragraphs 0010, 0023-0025, 0029, 0059).

11. As per claim 4, Tanaka teaches the invention as claimed, including a method of allocating computer resources in a virtual machine system, comprising the steps of:

providing an active OS and a standby OS (paragraphs 0009-0010); and

recording uses of main storage allocated to the active OS (paragraphs 0009-0010, 0023-0024);

when a fault occurs in an application program operating on the active OS (paragraphs 0010, 0025), referring to the recorded uses and reallocating main storage used by the failing application program to the standby OS, thereby executing an application program performing the

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same application as the application program that failed in the active OS (paragraphs 0010, 0023, 0025, 0029, 0059).

12. As per claim 5, Tanaka teaches the invention as claimed, including a method of allocating computer resources in a virtual machine system having a virtual machine monitor controlling plural OSs,

wherein an active OS calculates computer resources used for execution of one or more application programs (paragraphs 0009-0010, 0023-0024), including an application program of a hot standby job in which a program performing a same application is executed under the standby OS (paragraph 0010) when a fault occurs, and if resources are sufficient, notifies the virtual machine monitor of which application program is using which resource; if resources are insufficient, obtains a new resource from the virtual machine monitor (paragraphs 0010, 0023, 0025, 0029, 0059); and

wherein, when a fault occurs in an application program of the active OS or the hot standby job, the virtual machine monitor issues to the standby OS a request to attach a resource having being used by the application program of at least the hot standby job to the standby OS (paragraphs 0010, 0023, 0025, 0029, 0059).

13. As per claim 6, Tanaka teaches the invention as claimed, including a method of allocating computer resources in a virtual machine system, for exclusively executing plural programs performing same applications by using a single computer system which has plural OSs, a virtual machine monitor controlling the plural OSs, and resources including main storage,

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wherein a first OS of the plural OSs reports a resource allocated to a first application program operating on the first OS to the virtual machine monitor, and upon detecting a fault of the first application program, reports the fact to the virtual machine monitor (paragraphs 0010, 0023, 0025, 0029, 0059);

wherein, upon receipt of a fault detection report from the first OS, the virtual machine monitor disconnects the resource having been used by the first application program from the first OS, allocates the resource to a second OS, and requests the second OS to initiate a second application program performing the same application as the first application program (paragraphs 0010, 0023, 0025, 0029, 0059); and

wherein the second OS allocates a resource used by the second application program when initiated, from the allocated resource (paragraphs 0010, 0023, 0025, 0029, 0059).

14. As per claim 7, Tanaka teaches the invention as claimed, including a method of allocating computer resources in a virtual machine system, for exclusively executing plural programs performing same applications by using a single computer system which has plural OSs, a virtual machine monitor controlling the plural OSs, and resources including main storage,

wherein a first OS of the plural OSs reports a resource allocated to a first application program operating on the first OS to the virtual machine monitor (paragraph 0002, 0010, 0023, 0025);

wherein, upon detecting a fault of the first OS, the virtual machine monitor allocates a part or all of resources having been used by the first OS to a second OS and requests the second

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OS to initiate a second application program performing the same application as the first application program (paragraphs 0010, 0023, 0025, 0029, 0059); and

wherein the second OS allocates a resource used by the second application program when initiated, from the allocated resource (paragraphs 0010, 0023, 0025, 0029, 0059).

15. As per claim 8, Tanaka teaches the invention as claimed, including a method of allocating computer resources in the virtual machine system according to claim 6, wherein, where the first OS and the second OS are in standby configuration, when a fault is detected in an application program operating on the first OS, a second application program is run on the second OS only when the failing application program is a hot standby job (paragraph 0010).

16. As per claim 9, Tanaka teaches the invention as claimed, including a virtual machine system which comprises an active OS, a standby OS, and a virtual machine monitor controlling plural OSs,

wherein the active OS includes at least: a fault level notification routine that monitors fault levels of application programs executed under the active OS (paragraphs 0010, 0023, 0034, 0036), and when a fault is unrecoverable, reports the fact to the virtual machine monitor; and a resource disconnection routine that, upon receipt of a request to disconnect a resource allocated to the active OS from the virtual machine monitor, disconnects the requested resource (paragraphs 0010, 0023, 0034, 0036);

wherein the standby OS includes a resource engaging routine that, upon receipt of a request to newly attach a resource from the virtual machine monitor, attaches the requested resource to that OS (paragraphs 0010, 0023, 0025, 0029, 0059); and

wherein the virtual machine monitor includes: an OS fault detecting routine that detects a fault of the active OS (paragraphs 0010, 0023, 0025, 0029, 0059); means that, upon detecting a fault of the active OS, finds a resource to be reallocated to the standby OS and reports a resource to be newly attached to the standby OS; a means that, upon receipt, from the active OS, of notification that an application program is faulty, finds a resource to be disconnected and reports it to the active OS; and a means that, after completion of disconnecting the resource, reports a resource to be newly attached to the standby OS (paragraphs 0010, 0023, 0025, 0029, 0059).

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Nota et al. (USPN 5,805,790) teaches a fault recovery mechanism whereby multiple virtual machines are supported, and upon detection of a fault, process status information is recorded and used to continue the interrupted process on another virtual machine.

Starovic et al. (USPN 6,625,751) teaches a primary and secondary virtual machine wherein both virtual machines run identical operations such that a failure in the primary virtual machine triggers the activation of the secondary virtual machine to continue the same processes.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Syed J Ali whose telephone number is (703) 305-8106. The examiner can normally be reached on Mon-Fri 8-5:30, 2nd Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai T An can be reached on (703) 305-9678. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Syed Ali
June 30, 2004

